

REMARKS

This application has been reviewed in light of the Office Action mailed May 20, 2005. Claims 9-21 are now pending in this case. Independent claim 9 has been amended. Additionally, claims 18-21 have been added to provide Applicants with a more complete scope of protection. Support for amended claim 9 is described below. Support for claims 18-20 is found on page 7, lines 20-21. Support for claim 21 is found on page 7, line 20. Based on the following reasons, Applicant respectfully submits that independent claim 9 is in condition of allowance. Furthermore, claims 10-21, as dependent on the allowable claim, are also in a condition of allowance. Favorable reconsideration of the currently pending claims is respectfully requested.

I. THE 35 U.S.C. § 112 REJECTION, SECOND PARAGRAPH

Claims 9-17 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office Action on Page 2 stated that the phrase “an active surface...in the range of 1500 m²/g is vague and indefinite.”

Because the claims have been amended to no longer include this phrase, this rejection is now moot. For this reason, Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 112, second paragraph, rejection.

II. THE 35 U.S.C. §103(a) REJECTION OVER TSAI IN VIEW OF HALLIOP

The Examiner further rejected claims 9-14, 16 and 17 as obvious, and therefore unpatentable, over U.S. Pat. No. 5,711,988 (“Tsai”) in view of U.S. Pat. No. 5,649,982 (“Halliop”). The Examiner reasoned that Tsai teaches or suggests substantially all the limitations of the manufacturing method in claims 9, 12, 13, 16, and 17 except that Tsai does not disclose that the carbon coated materials in both the positive and negative electrode subassemblies are

each of a fabric, such that material can be said to be a “carbon fabric.” The Examiner further reasoned that Halliop teaches or suggests a carbon fabric that can have an active surface area greater than 1000 m²/g. The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the carbon coated surface materials of Tsai by including the carbon fabric in each of the electrode subassemblies as taught by Halliop.

Applicant urges that the pending claims are patentably distinguishable from the prior art because Tsai in combination with Halliop does not teach or suggest every limitation in every claim and the missing claim elements are not necessarily present in the method of manufacturing the energy storage device of Tsai in view of Halliop and would not be so recognized by persons of ordinary skill.

Claim 9 recites an “activated carbon fabric,” that is, a fabric, which may be woven, non-woven, felt, or a web, made from activated carbon fibers, such as TC-66 KoTHmex. (See specification at page 9, line 24, and page 7, lines 5-8). Neither Tsai nor Halliop disclose this element.

Tsai teaches an energy storage device, and methods of fabrication therefor, comprising a plurality of cells stacked and bonded together, wherein each cell comprises a pair of electrodes (e.g., 111A and 111B, Tsai Fig. 3) and an insulative gasket interposed between the electrodes (e.g., 121 and 123, Tsai Fig. 3). When the electrodes are bonded together, a gap is formed for containing an aqueous or non-aqueous electrolyte. Tsai at column 6: 56-62; *Id.* at column 17, lines 6-8. Tsai’s electrodes comprise an electrically conductive support material, such as metal, electrically conductive ceramic, or electrically conductive carbon. Tsai at column 11, lines 24-31. Tsai teaches that each electrode is coated with a porous, electrically conductive material,

such as a metal oxide or porous electrically conductive carbon. Tsai at column 5, line 60 through column 6, line 3; Id. at Claim 1; Id. at column 26, line 36; Id. at column 30, line 48. As the Examiner acknowledges, however, nowhere does Tsai teach or suggest Applicant's claim element of an activated carbon fabric.

Unlike Applicant's invention, the Halliop specification expressly teaches and claims that the Halliop invention uses a non-woven web of non-activated carbon fibers. Halliop at column 2 lines 25-26 and column 3, lines 33-38. Indeed, Halliop expressly teaches away from the use of activated carbon fibers, asserting that the use of such a fabric is costly, difficult to attach to current collectors, and is limited in the useful capacitor configurations that may be achieved. Halliop at column 1, lines 25-34 (discussing Azuma, U. S. Pat. No. 4,626,964).

The allegedly active surface of Halliop's non-activated carbon fabric is due to its impregnation with additional particles of activated carbon. Halliop at column 2, lines 49-50. The geometry of carbon particles is different from that of carbon fibers and this geometric difference is known to translate into different properties. For example, M. Suzuki (*Carbon*, Vol. 32, 577-586, 577 (1994)) stated that "activated carbon fibers (ACFs) have unique characteristics compared with granular or powder activated carbons. Thin-fiber shape clearly assures fast intraparticle adsorption kinetics compared with pelletized or granular activated carbons..." Additionally, Burchell *et al.* described a material derived from fibers that has a unique combination of properties including electrical conductivity. (*Carbon*, Vol 35, 1279-1294, 1292 (1997)). Thus, Halliop does not teach the use of an activated carbon fabric.

Applicant urges that because Tsai in view of Halliop does not teach or suggest every limitation in any of pending claims 9-14 and 16-17, the method of Tsai in combination with Halliop is not the same or similar to the method of the present invention. In addition, Applicant

urges that the Examiner has not established either a motivation for combining the Tsai reference and the Halliop reference or a reasonable degree of predictability of success in any proposed combination of the Tsai and Halliop reference that would lead a person of skill in the art to achieve the invention described and claimed in the present application. This is particularly so in view of the fact that Halliop specifically teaches away from the use of an activated carbon fabric, but instead teaches the use of a non-activated carbon fabric impregnated with activated carbon particles.

Applicant therefore respectfully requests that the Examiner also withdraw the obviousness ground for rejection.

Since there is no prior art that teaches or suggests the claimed invention, Applicant respectfully requests that the Examiner withdraw all rejections of the present invention.

CONCLUSION

In view of the foregoing, Claims 9-21 are submitted to be allowable, and issuance of a formal Notice of Allowance is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. R. Buckingham', is written over a horizontal line.

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September 20, 2005

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